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EXAMINER	
EPPERSON, JON D	

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1639	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/045,674	LADNER ET AL.	
	Examiner	Art Unit	
	Jon D. Epperson	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 November 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *227-234,240,243 and 248-262* is/are pending in the application.

4a) Of the above claim(s) *248-262* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *227-234,240 and 243* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of the Application

1. The Response filed November 8, 2007 is acknowledged.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior office action.

Status of the Claims

3. Claims 227-234, 240, 243, and 248-262 were pending. Claims 248-262 are drawn to non-elected species and/or inventions and thus these claims remain withdrawn from further consideration by the examiner, 37 CFR 1.142(b), there being no allowable generic claim. Therefore, claims 227-234, 240, and 243 are examined in this action.

Priority

4. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. [1] as follows:

The present application is a CIP of 09/837,306 filed 4/17/2001, which claims benefit of 60/198,069 filed 4/17/2000

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35

U.S.C. 112. See Transco Products, Inc. v. Performance Contracting, Inc., 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

However, one or more of the applications stated above fail to provide adequate support under 35 U.S.C. § 112, first paragraph for the claimed invention as follows:

> (A) For ***claims 227-234, 240, and 243***, the '306 and '069 applications fail to provide support for the recited formulas -X_1-Y-X_2-M-X3 and X4-I-X5-X6-S-G-G-X7-T-X8-Y-A-D-S-V-K-G listed in independent claim 227 as the VH CDR1 and CDR2 regions, respectively. In addition, the '306 and '069 applications fail to provide support for the "comprises an amino acid sequence" language (e.g., see New Matter rejection below which is incorporated in its entirety herein by reference).

If applicant believes this assessment is in error, applicant must disclose where in the specification support for these limitations can be found. Therefore, the earliest effective filing date is deemed to be the actual filing date of the case i.e., 10/25/2001.

Response

5. Applicant's arguments directed to the above Priority analysis were fully considered (and are incorporated in their entirety herein by reference) but were not deemed persuasive for the following reasons:

[1] Applicants argue, "that claims 248-262 depend (directly or indirectly) from claim 227 ... [and thus] necessarily fall within elected Group IV" (e.g., see 11/18/07 Response, page 6, second to last paragraph).

[1] The Examiner respectfully disagrees. Applicants' argument would be true if "dependent" claims 248-262 actually provided some further limitation for the subject matter in claims 227-234, 240, and 243. However, this is not the case (i.e., these claims were improperly

listed as dependent claims). Thus, Applicants' argument is moot. Furthermore, even if, *assuming arguendo*, claims 248-262 did further limit claims 227-234, 240 and 243 (which is not the case), Applicants elected a library of proteins, not a library of protein-linkers or a library phage particles and. As discussed in the restriction, a search for Applicants' elected proteins would not necessarily turn up art for the protein-linkers or phage particles set forth in withdrawn claims 249-262: For example, the elected proteins could be located in journals drawn to solid-phase peptide synthesis rather than phage display. In addition, the peptides can be separately classified and thus would require a separate burdensome classification search (e.g., see class 510, subclass 810 wherein peptides bound to a solid support are set forth; see also class 530, subclass 350 for peptides that are not bound to a solid-support; see also class 424, subclass 192.1 wherein "fusion proteins" like the ones used in phage display are set forth; compare also class 506, subclass 14 to class 506, subclass 18 wherein a "displayed" library such as a library of phage particles is classified separately from a library proteins that are not displayed). Here, Applicants elected a library of peptides, polypeptides, or proteins that were not displayed (i.e., classified in 506, subclass 18) rather than a library that is displayed on a phage with the use of a linker (e.g., see class 506, subclass 14). This can be clearly seen from Applicants' election of Group IV (i.e., library of peptides, proteins, etc.) rather than Group III (i.e., a phage library).

[2] Applicants argue, "Claims 249-262 merely provide an additional limitation to the elected subject matter ... by specifying how the elected libraries ... are displayed or reciting additional sequences" (e.g., see 11/18/07 Response, page 7, first paragraph).

[2] Claim 249 reads, "wherein the diversity of peptides, polypeptides or proteins is

displayed on genetic packages." Original claim 11, drawn to non-elected Group II reads, "A library comprising a collection of genetic packages that display a member of a diverse family of peptides, polypeptides or proteins ... ." The Examiner fails to see the difference. That is reversing the subject/verb order does not change the meaning of the claim. Writing a claim drawn a diversity of peptides that is "displayed" on a collection of genetic packages is exactly the same as writing a claim drawn to a collection of genetic packages that display the diversity of peptides. Claim 248, for example, doesn't state that the library of peptides have been "cleaved" from the genetic packages. Furthermore, a phage (an the fusion peptides expressed thereon) doesn't further limit a peptide as erroneously purported by Applicants and even if did (which is not the case, see above) it would be withdrawn from consideration as drawn to non-elected subject matter as a result of the divergent subject matter and burdensome search (see response [1] above).

Withdrawn Objections/Rejections

6. The Heddle et al. rejection under 35 U.S.C. §§ 102/103 is withdrawn in view of Applicants' amendments to the claims. All rejections are maintained and the arguments are addressed below.

Outstanding Objections and/or Rejections

Claims Rejections - 35 U.S.C. 112, first paragraph

7. Claims 227-234, 240, and 243 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to

reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed had possession of the claimed invention. This is a new matter rejection.

A. Claims 227-234, 240, and 243 were amended in the 11/8/07 response. However, the Examiner cannot find support for the full scope of the current amendments. Specifically, Applicants' current claim read on "any" library of peptides, polypeptides or proteins that comprise a VH CDR1 and VH CDR2 that are encoded by DNA sequences comprising sequences encoding the VH CDR1 and VH CDR2 wherein said VH CDR1 and VH CDR2 comprise "an" amino acid sequence according to the formula -X_1-Y-X_2-M-X_3- and -X_4-I-X_5-X_6-S-G-G-X_7-T-X_8-Y-A-D-S-V-K-G-, respectively. That is, the claims read on any "dimer" of the -X_1-Y-X_2-M-X_3- and -X_4-I-X_5-X_6-S-G-G-X_7-T-X_8-Y-A-D-S-V-K-G- sequences, respectively such as -X_1-Y- or -X_2-M- or -M-X_3- for the -X_1-Y-X-M-X_3- sequence. Likewise, -X_5-X_6- would fall within the scope of "an" amino acid sequence according to the formula -X_4-I-X_5-X_6-S-G-G-X_7-T-X_8-Y-A-D-S-V-K-G- and, as a result, would read on a VH CDR2 composed of "any" amino acids sequence (e.g., a dimer) composed of the listed amino acids in the claim (i.e., any natural amino acid besides cysteine). To the extent that Applicants' claimed library do not require the "full length" of the listed VH CDR1 and CDR2 sequences (i.e., -X_1-Y-X_2-M-X_3- and -X_4-I-X_5-X_6-S-G-G-X_7-T-X_8-Y-A-D-S-V-K-G-, respectively), such broadened scope represents new matter. Use of open-ended "comprising" language in conjunction with the word "an" amino acid sequence rather than "the" amino acid sequence broadens the claim to include "dimers", "trimers", etc. of the full length sequences. Example 3, beginning on page 40 of the specification does not support such scope (e.g., see 11/8/07 response, page

6, paragraph 1 wherein Applicants cite example 3 for support; see also page 7, last paragraph for other citations). In addition, Example 3 does not provide support for the list of 19 amino acids at every position but, rather, only the positions denoted with a "1" in figure 10. Likewise, the dependent claims also fail to limit one or more of these sequences to anything less than a dimer, trimer, etc. If applicant believes this rejection is in error, applicant must disclose where in the specification support for this amendment can be found in accordance with MPEP 714.02.

Response

8. Applicant's arguments directed to the above New Matter rejection were fully considered (and are incorporated in their entirety herein by reference) but were not deemed persuasive for the following reasons. Please note that the above rejection might have been modified from it original version to more clearly address applicants' newly amended and/or added claims and/or arguments.

Applicants argue, "the claimed subject matter .... [has been] amended ... to recite ... a library comprising a collection of members of a family, the family comprising a diversity of peptides, polypeptides or proteins, wherein the peptides, polypeptides or proteins each comprise a VH CDR1 and a VH CDR2 and are encoded by DNA sequences comprising sequences encoding the VH CDR1 and the VH CDR2. Thus, the amendments make it clear that the components of the claimed library contain both VH CDR1 and VH CDR2 regions." (see 11/8/07 Response, page 7, last three paragraphs). In addition, Applicants cite a variety of passages in the specification where support for these amendments can allegedly be found (i.e., see 11/18/07

Response, page 7, last paragraph).

It is respectfully submitted that the Applicants' amendments have not gone far enough. Applicants use of open-ended "comprising" language in conjunction with the indefinite article "a" (rather than the definite article "the") broadens the scope of the claims to include VH CDR1 and VHCDR2 regions that read on any dimer, trimer, etc. of the recited sequences (e.g., see newly amended rejection above). Thus, Applicants' claims still contain new matter.

Accordingly, the New Matter rejection cited above is hereby maintained.

New Rejections

Claims Rejections – 35 U.S.C. 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 227-234, 240, and 243 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Huse et al. (U.S. Patent No. 6,531,580 B1) (filing date is June 24, 1999).

Applicants' current claims read on any library of peptides, polypeptides or proteins that comprise a VH CDR1 and VH CDR2 wherein said VH CDR1/CDR2 are encoded by DNA sequences comprising sequences encoding for the VH CDR1 and VH CDR2 and wherein said VH CDR1 and VH CDR2 comprise "an" amino acid sequence according to the formulas -X_1-Y-X_2-M-X_3- and -X_4-I-X_5-X_6-S-G-G-X_7-T-X_8-Y-A-D-S-V-K-G-, respectively. That is, the claims read on any "dimer", "trimer", etc. of the -X_1-Y-X_2-M-X_3- and -X_4-I-X_5-X_6-S-G-G-X_7-T-X_8-Y-A-D-S-V-K-G- sequences, respectively such as -X_1-Y- or -X_2-M- or -M-X_3- for the -X_1-Y-X-M-X_3- sequence. Likewise, -X_5-X_6- would fall within the scope of "an" amino acid sequence according to the formula -X_4-I-X_5-X_6-S-G-G-X_7-T-X_8-Y-A-D-S-V-K-G- and, as a result, would read on a VH CDR2 composed of "any" amino acids sequence (e.g., a dimer) composed of the listed amino acids in the claim (i.e., any natural amino acid besides cysteine). Please note that the term "peptide" is generic with respect to size and encompassing any thing from

dimers on up. Thus, Applicants' claims do not require the "full length" sequences for VH CDR1 and VH CDR2 sequences (i.e., -X_1-Y-X_2-M-X_3- and -X_4-I-X_5-X_6-S-G-G-X_7-T-X_8-Y-A-D-S-V-K-G-, respectively). That is, use of open-ended "comprising" language in conjunction with the word "an" in the phrase "comprises an amino acid sequence" rather than use of the word "the" in the phrase "comprises the amino acid sequence" broadens the claims to encompass any dimer, trimer, etc. of the recited formulas. In addition, claim 228 does not further limit claim 227 insofar as it places a limitation on a DNA sequence that is not necessarily expressed. That is, nothing in claim 27 requires that the VH CDR3 portion of the DNA be used to encode any part of the family of peptides, polypeptides, and proteins. For example, a DNA sequence comprising VH CDR1, VH CDR2 and VH CDR3 encoding regions may be used to produce peptides without a VH CDR3 region (i.e., produce only VH CDR1 and VH CDR2 peptides, polypeptides, or proteins). Consequently, any limitation on the VH CDR3 DNA does not necessarily further limit the claims. Claim 227 does not read, for instance, "wherein the peptides, polypeptides or proteins each comprise a VH CDR1, VH CDR2, and VH CDR3." Thus, dependent claims 228-234, 240, and 243 do not limit independent claim 227 when the VH CDR3, VH 3-23, immunoglobulin light chain regions are not expressed. That is, the fact that the DNA sequences is required to possess an "encoding sequence" for VH CDR3, VH 3-23, and/or immunoglobulin light chains does not mean that any of those sequences have been expressed to produce the claimed library of peptides, polypeptides or proteins. In sum, Applicants' claims read on a library of peptides, polypeptides or proteins that contain VH CDR1 and VH CDR2 regions

wherein said regions comprise at least a "dimer" of the X_1-Y-X_2-M-X_3 and X_4-I-X_5-X_6-S-G-G-X_7-T-X_8-Y-A-D-S-V-K-G sequences, respectively.

For ***claims 227-234, 240, and 243***, Huse et al. disclose a library comprising a collection of members of a family, the family comprising a diversity of peptides, polypeptides or proteins (e.g., see abstract and Summary wherein a family of enhanced LM 609 grafted antibodies are disclosed; see also column 18, last paragraph, "To identify enhanced LM609 antibodies, a library of modified LM609 grafted antibodies was generated"; see also column 4, first two paragraphs under Detailed Description wherein a combinatorial antibody FAB library is disclosed; see also column 14, first paragraph; see also column 14, last two paragraphs; see also example). Please also note that a single antibody reads on a "library" because it contains "two" heavy chains. In addition, Huse et al. disclose a family wherein the peptides, polypeptides or proteins each comprise a VH CDR1 and CDR2 (e.g., see column 19, lines 30-40 disclosing various VH CDR1 and CDR2 regions; see also column 22, paragraph 2; see also last two paragraphs; see also column 18, last two paragraphs). In addition, the VH CDR1 region corresponds to the X_1-Y-X_2-M-X_3 formula (e.g., see column 19, line 30-35 wherein SEQ IDs 48, 50, and 52 are disclosed corresponding to the formula wherein X_1 = Ser, X_2 = Asp, X_3 = Ser; see also column 22, line 12 wherein SEQ ID NO:34 is disclosed; see also line 50). In addition, Huse et la. disclose, for example, a "dimer" of X_4-I-X_5-X_6-S-G-G-X_7-T-X_8-Y-A-D-S-V-K-G- (e.g., see column 18, last full paragraph wherein the "G-G" motif is disclosed in sequences 36; see also column 19 wherein the same G-G is dislcoed in line37 for SEQ ID No. 54; see also the next line wherein SEQ ID No. 56 contains a Thr-

Val motif; see also lines 39-40 wherein SEQ ID No. 58 contains a Thr-Val motif as well. Please note that many other dimer possibilities exist depending on the portion that is selected. In fact, the X5-X6 sequence is broad enough to read on any sequence that contains two adjacent amino acids that are not cysteine (i.e., encompasses all of the VH CDR2 regions listed in the publication).

The libraries of Huse et al. meet all of the limitations of the claimed library (see above) except for the product-by-process limitations (e.g., produced by an encoding process instead of say an entirely synthetic process as in claim 227, produced from a B cell isolated from a blood sample of a patient as in dependent claim 232, etc.) and thus would either anticipate or render obvious the claimed library because the process of Huse et al. produce the same or a substantially similar product (see above). See MPEP § 2113, "'[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.' *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)." When the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either 35 U.S.C. 102 or 35 U.S.C. 103 is eminently fair and acceptable. PTO is not equipped to make and then compare products. *In re Brown*, 459 F.2d 531, 173 USPQ 685 (CCPA 1972).

Conclusion

Applicant's amendment necessitated any new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jon D Epperson whose telephone number is (571) 272-0808. The examiner can normally be reached Monday-Friday from 9:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James (Doug) Schultz can be reached on (571) 272-0763. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Jon D. Epperson/
Primary Examiner, AU 1639